CLAIMS

5 1. A method for converting the bit rate of a compressed bitstream to use an available bandwidth of a channel, the method comprising:

re-quantizing a first portion of the bitstream containing video data using a first re-quantization scheme; and

re-quantizing a second portion of the bitstream containing video data using a second

10 re-quantization scheme.

2. The method of claim 1 wherein the second re-quantization scheme is computationally more demanding than the first re-quantization scheme.

15 3. The method of claim 2 wherein the first re-quantization scheme includes basic re-quantization.

4. The method of claim 2 wherein the second re-quantization scheme includes motion compensated re-quantization.

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5. The method of claim 1 further including determining the available bandwidth of the channel.

6. The method of claim 1 wherein the second re-quantization scheme includes full

25 decoding and re-encoding of the second portion.

7.   The method of claim 6 further including changing the resolution of the second portion.

8.   The method of claim 1 wherein the first and second portion each include a frame of the video data.

9.   The method of claim 8 wherein the compressed bitstream is an MPEG compressed bitstream and the first portion includes a B frame.

10.   The method of claim 8 wherein the compressed bitstream is an MPEG compressed bitstream and the second portion includes a P frame.

11.   The method of claim 10 wherein the first portion includes a P frame and the P frame is the last P frame in a group of pictures.

12.   The method of claim 1 wherein the first portion comprises color video data.

13.   The method of claim 1 wherein the second portion comprises brightness video data.

14.   The method of claim 1 wherein the first and second re-quantization schemes are performed in real time.

15.   The method of claim 1 further including monitoring the processing load of a processor in a network device.

16.   A method for converting the bit rate of a compressed bitstream to use an available bandwidth of a channel, the method comprising: selectively re-quantizing a portion of the bitstream according to one of two re-quantization schemes, the first re-quantization scheme comprising variable length decoding the portion, inverse quantizing the portion, re-quantizing the portion with a different quantization step size and variable length encoding the portion, the second re-quantization scheme comprising motion compensated re-quantization of the portion.

17.   The method of claim 16 wherein the portion is a frame of the compressed bitstream.

18.   The method of claim 17 wherein the frame is re-quantized using the first re-quantization scheme when the frame is a B frame and the frame is re-quantized using the second re-quantization scheme when the frame is a P frame.

19.   The method of claim 17 wherein the frame is re-quantized using the first re-quantization scheme when the frame includes chroma information and the frame is re-quantized using the second re-quantization scheme when includes luma information.

20.   The method of claim 16 further including performing motion estimation to produce motion vectors for the motion compensated re-quantization.

21.   A network device for providing compressed video data onto a network, the network device comprising: a re-quantization apparatus that receives a compressed video bitstream having a first bit rate and outputs the compressed video bitstream having a second bit rate, the re-quantization apparatus including a first portion configured to receive a first portion of the compressed video bitstream and output the first portion after re-quantization by a first re-quantization scheme, the re-quantization apparatus including a second portion configured to receive a second portion of the compressed video bitstream and output the second portion after re-quantization by a second re-quantization scheme; and a transmitter configured to transmit the compressed video bitstream having the second bit rate onto the network.

22.   The network device of claim 21 further including a network interface configured to receive the compressed video bitstream having the first bit rate from the network.

23.   The network device of claim 21 further including a rate controller coupled to the re-quantization apparatus.

24.   The network device of claim 21 wherein the first portion of the re-quantization apparatus is included in the second portion of the re-quantization apparatus.

25.   The network device of claim 21 further including a processor whose processing load at least partially determines which of the first portion and the second portion of the re-quantization apparatus is used.

26.   A system for converting the bit rate of a compressed bitstream to use an available bandwidth of a channel, the system comprising:

        means for re-quantizing a first portion of the bitstream containing video data using a first re-quantization scheme; and

        means for re-quantizing a second portion of the bitstream containing video data using a second re-quantization scheme.

27.   The system of claim 26 wherein the means for means for re-quantizing the first portion is included in the means for re-quantizing the second portion.

28.   The system of claim 26 wherein the means for re-quantizing the first portion includes means for performing basic re-quantization.

29.   The system of claim 26 wherein the means for re-quantizing the second portion includes means for performing motion compensated re-quantization.

30.   A computer readable medium including instructions for converting the bit rate of a compressed bitstream to use an available bandwidth of a channel, the instructions comprising:

        instructions for re-quantizing a first portion of the bitstream containing video data using a first re-quantization scheme; and

        instructions for re-quantizing a second portion of the bitstream containing video data using a second re-quantization scheme.